Geo-Targeted Alerting System (GTAS) Training Plan

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NOAA/OAR/ESRL
Global Systems Division
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1. Overview

The Department of Homeland Security (DHS) is funding the Global Systems Division (GSD) to conduct a Geo-Targeted Alerting System (GTAS) Pilot Project to determine how advanced high-resolution meteorological and toxic plume data can be used for emergency preparedness. The Geo-Targeted Alerting System (GTAS) is built around a display system that allows users to predict plume dispersion in a weather context, outline areas that require warning, and coordinate the specification and issuance of those warnings between weather forecasters and emergency operations officials. The goal of this project is to use NOAA's numerical modeling data, high performance computing, and warning infrastructure to provide *geo-targeted* safety information to specific city neighborhoods that are under a life-threatening condition.

This training plan describes the tasks necessary to train NWS Weather Forecast Office (WFO) forecasters and Emergency Operations Center (EOC) emergency managers on how to effectively collaborate and provide emergency situational awareness to the public using the same high-resolution meteorological and toxic plume data.

The GTAS Pilot Project will initially involve ten Sites. Five of these Sites will be EOCs and five will be WFOs. Each of these Sites will host a GTAS Client (see Figure 1 below). A GTAS Server (see Figure 1 below) will be installed at each of the NWS Regional Headquarters.

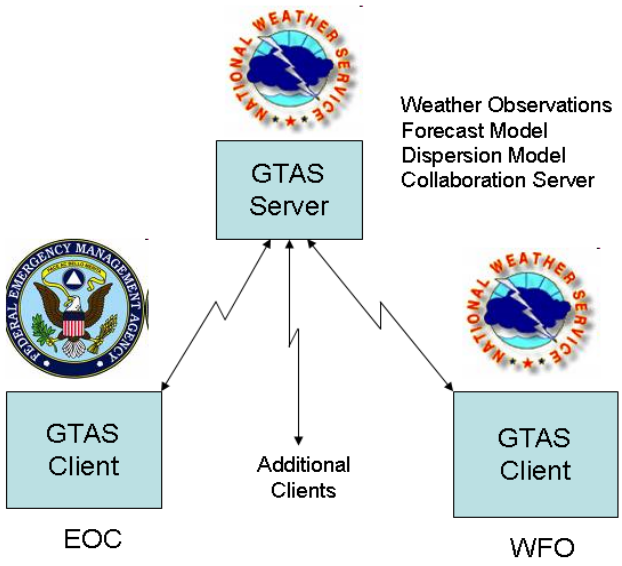

Figure 1 Basic System Architecture

2. Objective

The purpose of the training is to:
1. Familiarize users with the GTAS operations concept and identify each user's role within the GTAS Pilot Project.
2. Familiarize users with the FXC user interface of the GTAS system and identify any key areas of functionality improvement.
3. Introduce and familiarize the users with the HYSPLIT Model concept, activation, and display.
4. Improve coordination/collaboration between the WFO and EOC.
5. Improve accuracy and response times to hazard warnings.
6. Ensure the GTAS system is maintained and in an operational state at all times.

3. Approach

The GTAS training will consist of three parts: familiarization training, hands-on training, and recurring training.

3.1 Familiarization Training

The goal of this training is to familiarize users with the GTAS operations concept and the basic GTAS system functions.

In advance of this training, users can familiarize themselves with the GTAS user interface, which is specific to each Site, by downloading GTAS software from http://fxc.noaa.gov/GTAS/project and clicking on *Site Downloads* at the bottom of the page under *GTAS Proto-type Site Binaries and Documentation*. The software can be installed on any Windows or Linux system. The **GTAS Client Operations Manual** is also available at this location under *User Documentation*. Updates to the Software and the Operations Manual will occur as needed and will be based on user feedback.

This training will be conducted remotely for each Site via a GoTo Meeting and conference call approximately 1-2 weeks before the scheduled start of the Hands-on Training. The GoTo Meeting will be approximately 1 hour or more in duration depending on Site familiarity with FXC, which is the backbone of the user interface of GTAS, and the number of questions. The session will be conducted by GSD with HYSPLIT Model support provided by the Air Resources Laboratory (ARL). Each Site will need a system connected to the internet in order to see the training presentation materials. The training will consist of an overview of the GTAS Pilot Project, each user's role in GTAS operations, and a demo of the GTAS functionality added to the standard (FXC) user interface.

The NWS Regional Headquarters will receive their remote training session on troubleshooting minor hardware issues after their GTAS server has been installed.

In preparation for the Hands-on Training, training logistics (i.e. available facilities, equipment, staff, and training agenda) will also be discussed at this time.

3.2 Hands-on Training

The GTAS Hands-on training will immediately follow the GTAS system installation and Familiarization training at each participating WFO and EOC.

This portion of training will be provided by GSD, with HYSPLIT Model support from ARL, at the end user's facility.

The purpose of this training is to ensure that both the WFOs and EOCs have a complete understanding of the GTAS system and know how to use it operationally in case of an emergency.

GSD will provide samples of hazard emergency Procedures as a tool to help initiate collaboration of a hazard scenario between Sites. Sites are encouraged to develop their own collaboration hazard emergency scenario Procedures.

The portion of training provided to the WFOs will be performed on a clear weather day when forecasters are not pre-empted by other duties.

The training subjects for each WFO and EOC staff includes the following:

GTAS System Training

- This training is necessary in order for each person involved with the GTAS Pilot Project to know what the operational steps are in an emergency situation.

"HYSPLIT Model Expert" Training

- This training is necessary in order for each HYSPLIT Model Expert at each office to become familiar with the nature of the model and how to use it for an emergency situation. The HYSPLIT Model Expert may need to train others on how to use the model.

FX-Collaborate (FXC) System Training

- This training is necessary in order for each user to become familiar with their specific user interface setup and operation. Users will be required to be familiar with the collaboration component of their user interface. The FXC system is the user interface component of GTAS.

3.3 Recurring Training

The purpose of the recurring training is to ensure that users maintain proficiency in the system, the system is operationally ready, and any system modifications/fixes are

working as expected.

Telephone conference calls in conjunction with live GTAS collaboration sessions and GoTo Meetings will be scheduled on a frequent basis varies depending on Site availability. It is important, once the Hands-on training is completed, to keep the communication lines open between the WFOs and EOCs and to practice emergency situational awareness with the GTAS system.

GSD will provide training scenarios for the recurring training sessions with each WFO and EOC to practice their GTAS Pilot Project action plans. During these training scenarios and sessions, GSD will provide a training instructor to monitor the collaboration session between the WFO and EOC and provide helpful communication by phone when necessary.

4. Facility & System Requirements

All training will be conducted remotely or at the end user's facility.

The training course material will be prepared at GSD and evaluated independently by staff in Boulder, CO. This activity will require two workstations connected to a GTAS (development) server at Boulder. The hardware configuration will be as similar as possible to the fielded systems. The same hardware complement can also be used to demonstrate the system to management and visitors.

Hands-on and recurring training will take advantage of the operational systems at the various offices. This part of the training requires that the WFO, EOC and GSD instructor collaborate over the network.

The final list of Sites will be established once the necessary coordination between the various NWS and FEMA offices has been completed.

The tentative locations for the NWS training are:

- Dallas/Fort Worth, TX (NWS Southern Region)
- Salt Lake City, UT (NWS Western Region)
- Kansas City, KS (NWS Central Region)
- New York City, NY (NWS Eastern Region)
- Washington, DC (NOAA Headquarters, Air Resources Laboratory (ARL))

The following EOC locations have been tentatively identified:

- City of Dallas, TX
- Seattle, WA
- Kansas City, KS

- New York City, NY

5. Personnel Requirements

The successful conduct of the training requires that the facilities and systems are functioning properly, and the training material is ready. It also requires the support and participation of the following staff:

Training Staff
The training staff will consist of one to four GSD and one to two ARL personnel at a time at each training location. On occasion there may be an inclusion of one person at GSD for training support. The training staff will be intimately familiar with the GTAS system user interface functionality presented at each site. They will present the training materials to each user group and obtain system feedback while at the training site.

Support Staff
The support staff will consist of one or two persons at each WFO and EOC. They will install the equipment and stand by for additional software updates. There will also be one or two support staff at the NWS Regional Headquarters to maintain the GTAS Server equipment.

WFO Forecaster
The forecasters involved in the GTAS Pilot Project may vary depending on duty schedule and experience. The forecasters must be Meteorologists and able to interact with emergency managers on a regular basis. It is expected that one or two forecasters will be involved. One of these forecasters may be required to become a HYSPLIT Model Expert and thus must be available as well for HYSPLIT Model specific training as described in the FamiliarizationTraining section.

Emergency Managers
The emergency managers involved in the GTAS pilot project may vary depending on availability and schedules. The emergency managers must be able to interact with WFO forecasters when contacted about an emergency situation. It is expected that one or two emergency managers will be involved with the project. The on-duty emergency manager would be required to communicate with other emergency managers in the office and/or surrounding areas in order to accurately make an alert/warning announcement for an emergency situation to the affected civilians.

6. Schedule

It is estimated that each of the on-site training sessions identified above will be one day in duration. The planned progression of training is from the NWS Southern Region, to the Western Region, to the Central Region, and finally the Eastern Region. The actual dates of training will be coordinated with each office and will depend on availability of the staff and facility.

Site	Pre-deployment HYSPLIT	Pre-deployment System	Post-Deployment System	Post-Deployment Operation	Recurring Operation
NWS/SR		2		4	11
Dallas/Ft.Worth	1	2	3	4	11
NWS/WR		6		8	17
Seattle	5	7	9	10	17
NWS/CR		13		15	24
Kansas City	12	13	14	16	24
NWS/ER		19		22	25
New York	18	20	21	23	25

Note: Numbers indicate the approximate order of training starting in April, 2009 and continuing until the end of CY09

Figure 2 Training Schedule

7. Training Evaluation

In order to measure the effectiveness of the training users will be asked to provide feedback during and after the training sessions. Evaluation questionnaires will be provided online or as hard copies (hand-outs).

- During and/or after the training sessions, GSD will provide a website or handouts to where the trainees can provide feedback and/or comments about the quality of the training.
- Verbal and interaction will be available for the trainees to have questions answered and provide feedback. Any feedback obtained will be used to improve training for the next installation sites